In the claims:

Please replace the pending claims with the listing of claims set forth below:

1. (withdrawn) A substantially pure DNA sequence encoding acetylcholinesterase (AChE) selected from the group consisting of:
   (a) genomic clones having a nucleotide sequence derived from the genomic region oh a human AChE gene;
   (b) cDNA clones having a nucleotide sequence derived from the sequence of said genomic clones of (a);
   (c) DNA sequence capable of hybridization to the clones of (a) and (b) under moderately stringent conditions and which encode biologically active AChE; and
   (d) DNA sequence which are degenerate as a result of the genetic code to the DNA sequence defined in (a), (b) and (c) and which encode biologically active AChE for use in biopharming.

2. (withdrawn) A DNA sequence according to claim 1, wherein said sequence encodes human AChE or biologically active derivatives thereof.

3. (withdrawn) A DNA sequence according to claim 2, which has all or part of the nucleotide sequence substantially as depicted in Fig. 1A, (SEQ ID NO: 1) and which encodes an amino acid sequence substantially similar or identical to all or part of the sequence of amino acid residues

depicted in Fig. 1B (SEQ ID NO:2).

4. (withdrawn) A DNA sequence according to claim 2, which has all or part of the nucleotide (SEQ ID NO:3) sequences substantially as depicted in Fig. 1C, and which encodes an amino acid sequence substantially similar or identical to all or part of the sequence of amino acid residues (SEQ ID NO: 4) also depicted in Fig. 1C.

5. (withdrawn) A DNA sequence according to claim 2, which has all or part of the nucleotide sequence (SEQ ID NO: 5) substantially as depicted in Fig. 1D, and which encodes an amino acid sequence (SEQ ID NO: 6) substantially similar or identical to all or part of the sequence of amino acid residues also depicted in Fig. 1D.

6. (withdrawn) A recombinant expression vector comprising a DNA sequence according to claim 1.

7. (withdrawn) A recombinant expression vector for use in biopharming, according to claim 6 which has a DNA sequence encoding a human AChE or biologically active derivatives thereof selected from:

   (a) a DNA sequence which has all or part of the nucleotide sequence (SEQ IS NO: 1) substantially as depicted in Fig. 1A, and which encodes an amino acid sequence substantially similar or identical to all or part of the sequence of amino acid residues (SEQ ID NO: 2) depicted in Fig. 1B.

   (b) a DNA sequence which has all or part of the nucleotide sequence substantially as depicted

in Fig. 1C, and which encodes an amino acid sequence substantially similar or identical to all or part of the sequence of amino acid residues (SEQ ID NO: 34) also depicted in Fig. 1C.

(c) a DNA sequence which has all or part of the nucleotide sequence (SEQ ID NO: 5) substantially as depicted in Fig. 1D, and which encodes an amino acid sequence substantially similar or identical to all a or part of the sequence of amino acid residues (SEQ ID NO: 6) also depicted in Fig. 1 D.

8. (withdrawn) A recombinant expression vector according to claim 7, which has a promoter controlling the transcription of said sequence encoding AChE selected from the group of eukaryotic host cell compatible promoters consisting of CMV, CMV-like, AChE and AChE-like promoters.

9. (withdrawn) A eukaryotic host cell transformed with the expression vector according to claim 6, said host cell being capable of expressing AChE when cultured under conditions promoting AChE expression.

10. (withdrawn) A eukaryotic host cell transformed with the expression vector according to claim 7, said host cell being capable of expressing AChE when cultured under conditions promoting AChE expression.

11. (currently amended) A transgenic non-human animal ~~comprising~~ whose genome comprises a recombinant

nucleic acid expression vector encoding a heterologous cholinesterase ~~(ChE) enzyme~~ positioned under the regulatory control of a promoter functional in the transgenic non-human animal, said heterologous cholinesterase selected from the group consisting of:

(a) wild-type human AChE;

(b) wild-type human BChE;

(c) ~~biologically active~~ variants of ~~the AChE and BChE of~~ (a) and (b) having cholinesterase activity; and

(d) wild-type insect ChEs,

wherein ~~the nucleic acid~~ said heterologous cholinesterase is expressed in the germ cells and/or somatic cells of the transgenic non-human animal at a higher level relative to a nontransgenic non-human animal.--

12. (previously presented) The transgenic non-human animal of claim 11, wherein the animal is Xenopus or mammal.

13. (previously presented) The transgenic non-human animal of claim 12, wherein the recombinant expression vector comprises a nucleic acid encoding a human AChE or a variant thereof having cholinesterase activity, which nucleic acid comprises:

(i) consecutive nucleotides having the nucleic acid sequence set forth in SEQ ID NO: 1 or a fragment thereof;

(ii) consecutive nucleotides having the nucleic acid sequence set forth in SEQ ID NO: 3 or a fragment thereof; or

(iii) consecutive nucleotides having the nucleic

acid sequence set forth in SEQ ID NO: 5 or a fragment thereof.

14. (cancelled)

15. (withdrawn) Acetylcholinesterase produced by a eukaryotic host cell according to claim 9.

16. (withdrawn) Acetylcholinesterase produced by a eukaryotic host cell according to claim 10.

17. (currently amended) The transgenic non-human animal of claim 11, wherein the transgenic non-human animal is a female mammal and whereas said promoter is active in specifically regulating expression of said heterologous cholinesterase in mammary glands of said female mammal.

18. (cancelled)

19. (cancelled)

20. (currently amended) The transgenic non-human mammal of claim [[19]] 11, wherein (c) are ~~the AChE variant is selected from the group consisting essentially of~~ recombinantly-produced variants having at least one point mutation and/or deletion of one or more ~~residues and mutations~~ nucleotides.

21. (withdrawn) A method of treatment of acute traumatic injury by administering to a patient in need of such treatment a therapeutically effective amount of at least one of an antisense oligodeoxynucleotide selected from

the group consisting essentially of Seq. ID No. 1-6.

22. (withdrawn) The method according to claim 21, wherein said administration step further results in preventing AChE overproduction and excessive dendritic growth.

23. (currently amended) The transgenic non-human mammal of claim 12, wherein ~~the~~ said mammal is a female goat and ~~the ChE enzyme~~ said heterologous cholinesterase expressed in ~~the~~ said germ cells and/or somatic cells of ~~the~~ said mammal is wild-type human AChE or BChE or a biologically active variant thereof.

24. (currently amended) A method of producing recombinant cholinesterase ~~enzyme~~ comprising the steps of:

(i) providing the lactating transgenic non-human female mammal according to claim 17;

(ii) obtaining milk from the transgenic non-human mammal of step (i); and

(iii) isolating human [[AChE]] cholinesterase from the milk obtained in step (ii),

so as to thereby produce recombinant human [[AChE]] cholinesterase.--

25. (cancelled)

26. (currently amended) The transgenic non-human animal of claim [[12]] 17, wherein the mammal is a mouse, a goat, a cow or a pig.--

27. (previously presented) A transgenic non-human animal assay system for studying secretion, control of

production and biochemical properties of cholinesterases in mammalian milk comprising the transgenic mammal of claim 17.